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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/800,970	03/16/2004	Yusuke Naruse	Q79944	1406

23373 7590 07/22/2005
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EXAMINER

CASTRO, ARNOLD

ART UNIT PAPER NUMBER

3747

DATE MAILED: 07/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/800,970

Applicant(s)

NARUSE ET AL.

Examiner

Arnold Castro

Art Unit

3747

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☐ Claim(s) ____ is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☒ Claim(s) 1-18 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Election/Restrictions

1. This application contains claims directed to the following patentably distinct species of the claimed invention:

Group (1) figures 1-3; Group (2) figures 4-5; Group (3) figures (6-8);

Group (4) figures 9-12; Group (5) figure 13; Group (6) figure (14);

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, claim 1 appears generic.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record

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showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

2. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arnold Castro whose telephone number is (571) 272-4839. The examiner can normally be reached on Mon, Tues, Wed, Thurs 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yuen Henry can be reached on (571)-272-4856. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Arnold Castro
Examiner
Art Unit 3747

AC



Henry C. Yuen
Supervisory Patent Examiner
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031604

21861 U.S. PTO

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March 16, 2004

MAIL STOP PATENT APPLICATION

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Re: Application of Yusuke NARUSE and Hisanori NOBE
INTERNAL COMBUSTION ENGINE IGNITION APPARATUS
Assignee: MITSUBISHI DENKI KABUSHIKI KAISHA
Our Ref. Q79944

Dear Sir:

Attached hereto is the application identified above comprising sixty-four (64) sheets of the specification, including the claims and abstract, eleven (11) sheet(s) of drawings (figures 1-14), a copy of the executed Assignment and PTO 1595 form, and a copy of the executed Declaration and Power of Attorney. Also enclosed is an Information Disclosure Statement and PTO/SB/08 A & B (modified).

The Government filing fee is calculated as follows:

Total claims	18 - 20	=		x	\$18.00	=	\$0.00
Independent claims	1 - 3	=		x	\$86.00	=	\$0.00
Base Fee							\$770.00

TOTAL FILING FEE	\$770.00
Recordation of Assignment	\$40.00
TOTAL FEE	\$810.00

The Office is hereby directed and authorized to charge the statutory filing fee of \$770.00 to Deposit Account No. 19-4880. You are also directed and authorized to charge or credit any difference or overpayment to Deposit Account No. 19-4880. The Commissioner is hereby authorized to charge any fees under 37 C.F.R. § 1.16, 1.17 and 1.492 which may be required during the entire pendency of the application to Deposit Account No. 19-4880. A duplicate copy of this transmittal letter is attached.

*Specimens*17497 U.S. PTO
10/800970

031604

comparison signal becomes larger than the reference signal in the rising portion of the ignition signal voltage, and interrupts the driving current when the comparison signal becomes smaller than the reference signal in the falling portion of the ignition signal voltage. Accordingly, even if the reference potential level of the ignition signal voltage is varied, the switching element can be certainly turned on and off at more accurate timings, and the degradation of an ignition characteristic can be avoided.

BRIEF DESCRIPTION OF THE DRAWINGS

13
Fig. 1 is an electrical diagram showing embodiment 1 of an internal combustion engine ignition apparatus of the invention.

Fig. 2 is a characteristic diagram for explaining the operation of the embodiment 1.

Fig. 3 is a characteristic diagram for explaining the operation of the embodiment 1.

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Fig. 4 is an electrical diagram showing embodiment 2 of an internal combustion engine ignition apparatus of the invention.

Fig. 5 is a characteristic diagram for explaining the operation of the embodiment 2.

Fig. 6 is an electrical diagram showing embodiment 3 of an internal combustion engine ignition apparatus of the

invention.

Fig. 7 is a characteristic diagram for explaining the operation of the embodiment 3.

Fig. 8(a)(b)(c) are characteristic diagrams for explaining the operation of the embodiment 3.

Fig. 9 is an electrical diagram showing embodiment 4 of an internal combustion engine ignition apparatus of the invention.

Fig. 10 is a characteristic diagram for explaining the operation of the embodiment 4.

Fig. 11(a)(b) are characteristic diagrams for explaining the operation of the embodiment 4.

Fig. 12 is a sectional view showing an IGBT used in the embodiment 4.

Fig. 13 is an electrical diagram showing embodiment 5 of an internal combustion engine ignition apparatus of the invention.

Fig. 14 is an electrical diagram showing embodiment 6 of an internal combustion engine ignition apparatus of the invention.

DETAILED DESCRIPTION OF THE INVENTION

Hereinafter, embodiments of the invention will be described with reference to the drawings.

Embodiment 1